



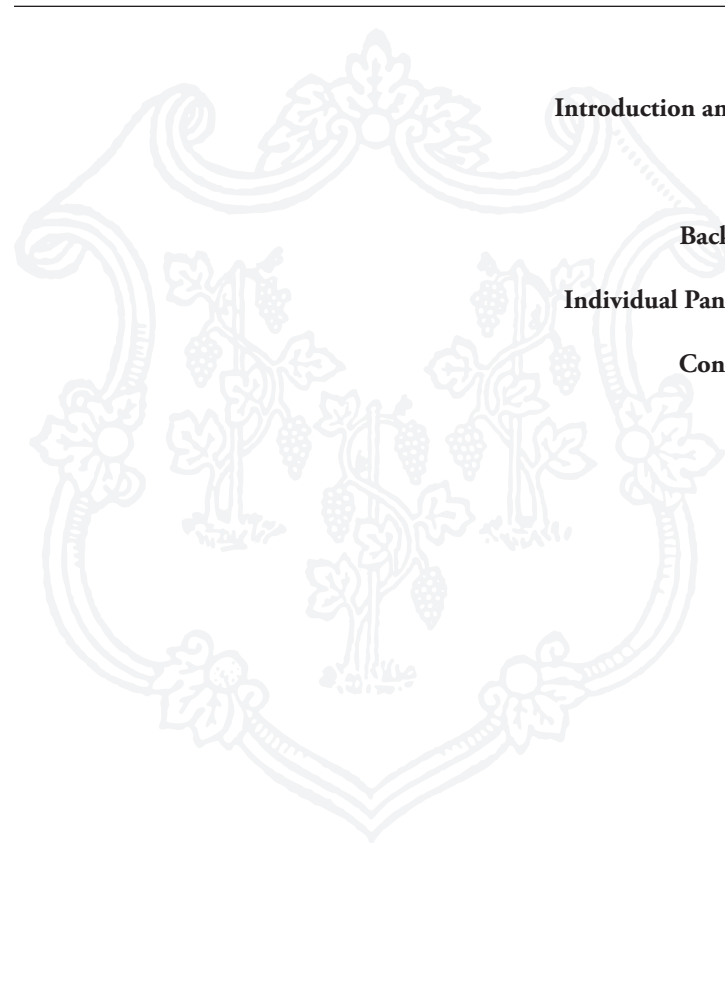
Speaker's Panel

GREEN JOBS PANEL REPORT

& EXECUTIVE SUMMARY OF RECOMMENDATIONS



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Executive Summary of Recommendations

GREEN JOBS PANEL REPORT

Connecticut House Speaker Christopher Donovan convened a panel of informed stakeholders that met in January 2010. The Panel was charged with reviewing current efforts in Connecticut related to green jobs and making recommendations to promote development of green jobs for consideration by the legislature. After a series of meetings, the following recommendations were offered by individual stakeholders.

I. Definitions

- » Establish a clear, working definition of “green collar jobs.”
- » Post the definition and related materials on a Connecticut Green Jobs website.
- » Define green jobs career ladders to provide a clear track and opportunities for mobility.

II. Organize and Coordinate Green Jobs Initiatives

- » Centralize responsibility for and coordination of green collar jobs.
- » Establish a state energy office as a central clean-energy authority and a conduit for federal funds.
- » Foster collaboration between regional research entities.

III. Financing Green Collar Initiatives

- » Maintain current funding for energy efficiency and renewable energy programs.
- » Emphasize innovative financing mechanisms to make capital available at low-interest rates.
- » Improve ability to access and utilize federal funding for clean-energy initiatives.

IV. Design of Efficiency and Renewable Energy Programs

- » Create financially sustainable programs structured to withstand market fluctuations and able to ultimately exist independent of public or ratepayer subsidies.
- » Work towards more effective public messaging and marketing strategies to increase awareness and investment statewide.

V. Training and Workforce Development

- » Ensure green jobs meet the needs of employees and are tailored to account for market and societal demands.
- » Increase investment in knowledge base through training facility innovations and upgrades, faculty education, and dissemination of information statewide.
- » Encourage system-wide uniformity in certifications between trade schools, community colleges, unions, state agencies and employers.

VI. Other

- » Streamline regulatory and agency procedures.
- » Consider all cost effective energy efficiency investments before investing in other resources.

1 INTRODUCTION

In light of the federal funding infusion for green jobs development and conservation, rapidly evolving technical standards and certifications of skill levels, the myriad training programs in the state, and the importance in economic development, Speaker of the House of Representatives, the Christopher Donovan, convened a Green Jobs Panel to review current efforts in Connecticut related to green jobs and make recommendations to promote development of green jobs for consideration by the legislature. The Panel met on January 7, 21 and 28, 2010. Participants presented background information and legislative recommendations.

PANEL MEMBERSHIP

Panel members represented government, education, labor, the environmental community and the investor owned electric utilities.

- A. **Legislators:** Rep. Vickie Nardello, Chair; Rep. Elizabeth Esty; Rep. Henry Genga; Rep. Susan Johnson; Rep. Matthew Lesser; Rep. James O'Rourke; and Rep. Lonnie Reed
- B. **Connecticut Clean Energy Fund**, represented by Lisa Dondy
- C. **Workforce Development Boards**, represented by Joe Carbone
- D. **University of Connecticut**, represented by Prabakhar Singh and Dr. Cameron Faustman
- E. **Institute for Sustainable Energy**, Eastern Connecticut State University, represented by William Leahy
- F. **Connecticut Community Colleges**, represented by Shelly Jewell
- G. **Connecticut Technical Schools**, represented by Patricia Ciccone
- G. **Grow Jobs Connecticut**, represented by John Harrity
- I. **Connecticut Trades**, represented by Frank DaCato
- J. **Environmental Energy Solutions**, represented by Joel Gordes
- K. **Environment Connecticut**, represented by Christopher Phelps
- L. **Greater New Haven Clean Cities Coalition**, represented by Lee Grannis
- M. **Northeast Utilities**, represented by James Ferrentino
- N. **United Illuminating**, represented by Chris Ehlert

From 1973 to 1980, Connecticut had at least ten solar manufacturers providing jobs in system design, manufacturing and installation. The loss of federal funding led to the collapse of these businesses. Connecticut learned a lesson from the demise of this promising industry: sustained and orderly development free of boom and bust funding periods is necessary for creation and maintenance of green jobs in its economy. These jobs, which require skill development, can be an important engine of economic growth. Connecticut has a history of environmental activism and strong environmental regulation. Studies conducted at Massachusetts Institute of Technology (MIT) as early as the 1992 demonstrate that states with strong environmental policies excel in economic performance.¹

Since the late 1990s, Connecticut has adopted a range of measures and programs to promote energy efficiency and renewable energy, funded by the federal and state governments and utility ratepayers. These efforts have given Connecticut an advantage in developing a green economy. However, we have not taken necessary steps to effectively address related job development. There is no clear definition of a green job. Agencies and educational institutions involved in green job development do not adequately coordinate their efforts. Certifications of skills are not consistent, nor are programs for development of needed skills. There is no single state agency with authority or responsibility for ensuring Connecticut is maximizing federal funding related to green jobs.

The following are steps Connecticut has taken related to energy efficiency and renewable energy:

- » State legislation established ratepayer funded programs for both investor-owned and municipal utility electric conservation programs, administered by those utilities. Natural gas conservation programs have also been funded by ratepayers and coordinated with the electric programs. These programs are part of the Connecticut Energy Efficiency Fund (CEEFF) and are overseen and advised by the Energy Conservation Management Board (ECMB). The investor-owned utility program plans are subject to Department of Public Utility Control (DPUC) approval. Federal stimulus funding has allowed these programs to address all fuel conservation measures.
- » State funding has been used for rebate programs for furnace and boiler upgrades and replacements with high efficiency units.

- » Programs utilizing both federal and state funds have been developed to upgrade and replace furnaces and boilers for low-income households.
- » Federal funding has been utilized to support all fuels weatherization for low income households.
- » Energy efficiency requirements have been established for various appliances.
- » Tax and other incentives have been established supporting energy efficiency, and development of renewable technologies and distributed resources. Such resources include small- and medium-size generating facilities, which may include renewable energy facilities. The incentives include capital and operating-cost subsidies and the provision of long-term and low interest financing.
- » Connecticut established a ratepayer supported fund for renewable energy programs (Connecticut Clean Energy Fund or CCEF). The fund is overseen by a 15-member board, which must develop a comprehensive plan that outlines strategies to support renewable energy sources and related enterprises, and to stimulate demand for renewable energy.
- » Investor-owned utilities are required to obtain increasing proportions of their power from renewable resources under the renewable portfolio standard (RPS), created to encourage the development and deployment of renewable energy technologies.
- » Certain large construction projects are required to meet "green building" standards.
- » The state building code has been upgraded regarding energy efficiency.

Connecticut has the opportunity to build on renewed federal interest in creating a more energy efficient and sustainable future, supported by federal stimulus funding through the American Recovery and Reinvestment Plan of 2009 (ARRA). In 2009, Connecticut received a \$3.36 million from the U.S. Department of Labor in ARRA funding to expand green jobs training and education initiatives. Connecticut's funding proposal was developed by the Connecticut Green Jobs Partnership, a public-private labor and education consortium created by Executive Order No. 23. The Office of Workforce Competitiveness, with guidance from the partnership, is responsible for implementing the initiatives in the proposal and strategic plan. Included among the initiatives to be pursued:

¹ Meyer, Stephen M., *Environmentalism and Economic Prosperity*, p. iv., MIT, October 1992.

- » Ensuring that the education curriculum and training capacity match the needs of energy sector employers;
- » Providing green technology training for municipal building officials; and
- » Upgrading the skills of displaced workers or those whose jobs have been outsourced.

The opportunities related to pursuing green job initiatives include new business and job creation, retraining unemployed and underemployed individuals during the economic downturn, providing opportunities for career advancement in energy efficiency and sustainability, reducing dependence on foreign oil, strengthening national security, promoting the use of domestic renewable energy resources, reducing the taxpayer burdens relating to inefficient public buildings, reducing household and business burdens relating to inefficient homes and buildings, and mitigating environmental impacts and climate change by reducing greenhouse gas emissions.

Connecticut must maximize federal funds for development of green jobs. We must develop a clear definition of green jobs, with clear standards for certification and licensing that are recognized nationally, as well as in Connecticut. Education and training programs must be designed to develop job skills and create career tracks for an evolving green economy. They must lead to appropriate skill level certifications, including degree programs and licensing. Green jobs need to be defined in a measurable manner to ensure it is possible to track progress on initiatives, and Connecticut must track education, certification and licensing, as well as placement in green jobs.

The full presentations are available at
www.housedems.ct.gov/GreenJobs.

A. Green Jobs in the US and Connecticut: Reality and Potential, Dr. Roger Bezdek, Management Information Services, Washington, DC.: In 2007, one trillion dollars was spent nationally in environmental protection, renewable energy and energy efficiency, more than the combined sales of the three largest corporations in the US (WalMart, Exxon Mobil and GM). Green technologies created jobs in two main categories – college educated professionals and highly skilled technical workers with advanced training. It is estimated that federal stimulus monies will create 230,000 jobs between 2009-2011 nationally. Connecticut may get 3-4,000 jobs.

Dr. Bezdek indicated there is neither a standard definition for green jobs, nor reliable estimates of existing green jobs or reliable forecasts for the future. Green jobs are currently defined by category. He estimates the number of green jobs as 9% of total jobs in Connecticut, slightly more than the national average, as follows: 70,000 in environmental protection; 7,000 in renewable energy; and 116,000 in energy efficiency.

Dr. Bezdek estimates the number of jobs that could be created by 2030 in Connecticut by sector and job. He discussed the recruitment of green companies to Connecticut to take advantage of the skilled workforce, building clusters around industry sectors, and using many points of entrance.

Dr. Bezdek indicated that Connecticut must use rigorous methods to track the impact of green jobs spending. Planning estimates must be based on realistic expectations. He recommends: developing a reliable baseline for green jobs data; developing forecasts regarding realistic scenarios; coordinating the diverse green initiatives of various state agencies; coordinating the efforts of private and quasi public agencies; coordinating with labor and educational officials to identify emerging new green jobs occupations; and targeting education and training to realistic objectives.

B. Programs Review and Investigations Committee – Green jobs portion of its Report on the Alignment of Post Secondary Education and Employment: The report discusses the factors driving the green jobs movement, defining green collar jobs, developing the green collar field and future opportunities, and delivering education and training. The report also provides detailed analysis of funding and current green

jobs efforts.

- C. Connecticut Clean Energy Fund (CCEF):** CCEF reported on its programming and funding. It indicated that renewable energy is a relatively small industry in Connecticut with significant growth opportunity. The industry is struggling as a result of a loss of subsidies due to the economy. Ten employers account for half the renewable and energy efficiency jobs and revenues, mostly focused on services, with only limited manufacturing outside of fuel cells. Less than 15 companies, excluding fuel cells, manufacture in Connecticut. The most immediate job creation is in energy efficiency and energy management. Public funding and strategic financing are critical to this industry. Targeted financing and subsidies preserve and create jobs and are vital to the building of this industry along with the Connecticut Clean Energy Fund.
- D. Navigant Consulting:** Navigant Consulting, on behalf of CCEF, reported on “New Technology Investments That Will Advance Connecticut’s Clean Energy Industry.” It identified 80 opportunities within five investment areas. Those investment areas include high efficiency building systems, distributed power systems, industrial energy efficiency, utility power generation and management, and renewable fuels production.
- E. University of Connecticut (UConn):** UConn presented information on the Center for Clean Energy Engineering programs, including: commercialization of new technologies; public-private partnerships; research and development efforts; barriers to green job development; energy opportunities; test bed technologies; and its green campus initiative. It also provided an overview of its agriculture school programs.
- F. Institute for Sustainable Energy (ISE):** ISE presented information defining green collar jobs, why Connecticut needs such jobs, where they are located, the educational continuum needed, and development of career ladders.
- G. Connecticut Community Colleges:** The community colleges presented information on their green energy initiatives, including: the Sustainable Operations: Alternative/Renewable(SOAR) Program; weatherization training; and the Connecticut Green Jobs Partnership.
- H. Connecticut Technical Schools:** The technical schools presented an overview of their curriculum and instructor training.

- I. **Connecticut trades:** The Connecticut trades representative presented information regarding the number of currently licensed solar installers, the potential for additional solar installers and the issues that the trades face. Currently 11,931 people in Connecticut are eligible for certification in solar thermal technologies, but need additional training to take the exam to be certified to meet the increasing demand for solar installers.
- J. **Environmental Energy Solutions:** Environmental Energy Solutions provided an historic perspective, reviewing causes of past failures, the importance of sustained orderly development, and the importance of training standards.
- K. **Environment Connecticut:** Environment Connecticut estimates that every \$1 million spent on energy efficiency results in 40 jobs, every \$1 billion spent on mass transit results in 35,000 jobs, and every \$1 million spent on clean water results in 10 to 100 jobs. He discussed the need for programs that target clean water treatment, forestry management, and sustainable agriculture.
- L. **CL&P and UI:** CL&P and UI reported on green jobs benefits of energy efficiency funding programs, estimating that Connecticut has 4,544 direct jobs and 7,270 indirect jobs in energy efficiency and renewable energy. They indicated that expansion of current programs is both possible and beneficial.
- M. **Connecticut Model Cities Program:** Lee Grannis, Connecticut Model Cities Program, reported on the Clean Cities Recovery Act and the Greater New Haven Clean Cities Coalition, including its on its efforts to create demand for alternative fuel vehicles and alternative fuels.

The following are all the recommendations generated by panelists. Individual recommendations reflect their diversity of views.

A. Definitions:

- I. Define "green collar jobs".
- II. Wherever possible, the U.S. Department of Labor taxonomy and EE/RE categorization should be incorporated into explanations of green collar jobs.
- III. Green collar jobs definition and related information should be collected and displayed within a Connecticut Green Jobs website.
- IV. Define career ladders to provide a clear track including opportunities for mobility.
- V. Use the 2009 Navigant Consulting study as a reference to quantify the number of current jobs in place and jobs created.

B. Organization and Coordination of Green Jobs Initiatives

- I. Establish a single point of responsibility or a coordinating council regarding green collar jobs.
- II. Establish a state energy office to serve as conduit for federal funding, and with authority regarding: transportation energy; electrical energy; renewable technologies; efficiency; emission reductions; climate change; energy education; and public outreach.
- III. Create an advisory board of entities involved in establishing/creating the demand for green jobs, including the utility companies, Energy Conservation Management Board, Clean Energy Fund, and others, to provide guidance to the higher education system regarding training for green jobs.
- IV. The UConn Center for Clean Energy and the Institute for Sustainable Energy should meet at least quarterly to discuss ways to collaborate on green initiatives. Institutions and centers located within the same region should also form partnerships and meet to develop collaborative efforts.

C. Financing Green Collar Initiatives:

- I. Maintain current funding for energy efficiency and renewable energy programs.

- II. Develop viable financing mechanisms, including streamlining the existing Connecticut Housing Investment Fund(CHIF) program.
- III. Establish innovative municipal clean energy financing programs using the Berkeley model.
- IV. Develop new or modify existing financing mechanisms to provide low-interest capital at all levels of the value chain.
- V. A state energy office should: control 50% of the Congestion Mitigation and Air Quality Improvement Program funds (CMAQ - currently controlled by the Connecticut Department of Transportation); have significant control over CCEF; have the authority to put together energy projects and develop energy related business opportunities.
- VI. Allow CCEF to develop transportation projects, e.g., those supporting plug-in hybrid vehicles.
- VII. Make it easier for non-state organizations to access state matching funds when applying for federal energy grants.
- VIII. Examine use of state pension funds for in-state investment, especially in green manufacturing.
- IX. Create green economy investment funds through bonding.
- X. Improve Connecticut's ability to take advantage of federal programs to bring greater resources into the state.
- XI. Create matching funds to pursue federal funding, specifically grants from the US Department of Energy that require 50% state matches.
- XII. Increase funding for the state's current Small Business Incubator Program by \$1 million annually and focus new dollars on supporting green technology companies.
- XIII. Increase funding for Connecticut Innovation's Seed and Pre-Seed Programs by \$1 million.
- XIV. Release funding for the Fuel Diversification Grant Program included the FY 2008 bond package (\$2.5 million).
- XV. Allocate sufficient resources for laboratories and equipment for training in occupational courses to meet the specifications of national certifying associations for solar teaching laboratories.

- xvi. Provide resources for public exhibits to showcase and demonstrate the latest green and sustainable technologies to increase public awareness and acceptance.

D. Design of Efficiency and Renewable Energy Programs:

- I. Design energy-related programs to use the lowest possible cash incentive to induce consumers to invest. Conduct "willingness to pay" focus groups and use other professional marketing techniques to help determine such points.
- II. Require a minimum percentage of funding dedicated to clean energy and efficiency incentive or rebate programs be directed towards workforce development.
- III. Clarify eligibility for rebates from CCEF, making consumers eligible for rebates after their system undergoes inspection by a building inspector.
- IV. Create stable clean energy programs that break the boom-bust cycle of incentives that have stifled growth of Connecticut-based clean energy businesses. Design the programs to reduce the need for incentives in an orderly fashion over time with the ultimate goal of creating self-sustaining in-state clean energy industries (such as solar or fuel cells) that are not dependent upon public or ratepayer subsidies for growth.
- V. Focus state support and attention on low tech and consumer oriented technology, as well as high tech, to promote economic growth and employment.
- VI. Develop more effective approaches of informing the public of existing renewable energy programs.
- IV. Develop a strategic plan that includes resources to sustain proven strategies for student success in completing certificates and degrees and in finding and maintaining employment in Connecticut's changing economy.
- V. Invest in academic innovations, increased support for students, state of the art equipment for training and affordable solutions critical to workforce training needs.
- VI. Provide greater financial aid for non-credit occupational and small business development courses and programs, to make them more affordable.
- VII. Create a solar thermal installers' certification course, curriculum and test to be administered by a third party.
- VIII. The Connecticut Employment and Training Commission and the Connecticut Energy Sector Partnership should regularly solicit and make widely available information on green efforts occurring among higher education institutions, including new degree and certificate programs, stand-alone courses, and center/institute initiatives useful in the alignment of green collar jobs and employer needs.
- IX. Educational systems should develop agreements to share equipment needed for students training for green collar jobs, such as solar photovoltaic installation.
- X. Frequent workshops and conferences should be held to educate school administrators, guidance counselors and instructors, to ensure a better understanding of the national and state commitment to the goals of a green economy, knowledge of the concepts supporting green jobs and hands-on experience and resources to help assist their students to identify career opportunities and related educational and training requirements.

E. Training and Workforce Development:

- I. Tailor green jobs training to market and societal demand, and include training on the economics of green technologies.
- II. The Departments of Higher Education and Education should prepare an annual cross-system list of green courses, certificates and majors offered, and an inventory of green-related equipment.
- III. The names of green certificate programs should be uniform across the Connecticut Community College System.
- XI. Protect UConn's Eminent Faculty Funding in FY 2012 and beyond.
- XII. Department of Labor and related agencies should work through technical advisory groups with unions and the state's educational systems to coordinate the use of "job ladders" that provide immediate employment, continuous training opportunities and advancement possibilities, in order to strengthen the state's ability to develop the skills and knowledge its workforce needs to create a more sustainable, green economy.

- xiii. Involve unions in green jobs initiatives.
- ixv. Ensure knowledge and skills training is made available by the state's workforce development providers and educational systems.
- xv. Use the workforce development system as the conduit for implementing workforce development activities, linking with K-12 public education, Technical High Schools, Community Colleges, Connecticut State University System, adult basic education, community organizations and commercial training providers, to create pipelines of workers for entry level employment through advanced supervisory and management levels and system design occupations.
- xvi. Set realistic employment goals for job creation to avoid glutting the market that may not be ready to absorb new graduates.
- viii. Streamline and clarify regulations and agency procedures.
- ix. Learn from efforts in other states related to promotion of green collar jobs to avoid reinventing the wheel.
- x. Support creation of commuter rail corridors and linked intermodal transit networks serving Connecticut's communities.
- xi. Release bond funds for state construction projects, e.g., vocational high schools.
- xii. Use empty or abandoned factories for cooperative indoor organic farming powered by renewable energy sources.

F. Other:

- i. Fully implement the provision in PA 07-242 requiring the Integrated Resource Plan (developed by the utilities and approved by the Department of Public Utility Control) to prioritize all cost-effective energy efficiency investments before new electric generation construction.
- ii. Gradually increase the Class III Renewable Portfolio Standard from 4% to 20% by 2020. Limit the total percentage of Class III demand that can met by measures funded by CCEF and require that a certain percentage be met by efficiency measures directly benefiting residential ratepayers.
- iii. Authorize the Attorney General's office to provide technical assistance and limited representation to individuals and small businesses to protect intellectual property through patents and other mechanisms.
- iv. Allow utility companies to partner with community and public agencies to develop renewable energy projects.
- v. Adopt a neighborhood electric (slow speed) vehicle law.
- vi. Address zoning barriers for green manufacturing.
- vii. Make changes in the bureaucracy and leadership of the state community college system in order to facilitate the promotion and implementation of green jobs.

5 CONCLUSION

Relative to other states, Connecticut is well-positioned to develop a strong green economy. To do so, we need to maximize available federal funding and coordinate the efforts of agencies and educational institutions to ensure an appropriately trained workforce to meet emerging demand.

NEXT STEPS:

The Energy and Technology Committee will raise a bill on green jobs that includes the individual recommendations listed above. The Committee will conduct a public hearing to allow interested parties to comment on the recommendations.